UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,885	03/24/2004	Ratnam Rama	22010-202	5591

			EXAMINER
52450	7590	07/03/2006	CHAU, COREY P

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ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		10/807,885	RAMA ET AL.
		Examiner	**Art Unit**	
		Corey P. Chau	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 March 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-35</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-35</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>3/24/04 ; 7/06/04</u>

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-16, 18-24, 26-30, 32-35 are rejected under 35 U.S.C. 102(e) as being

anticipated by U.S. Patent Application Publication No. 20040091120 to Kantor et al.

(hereafter as Kantor).

3.   Regarding Claim 1, Kantor discloses a method, comprising: detecting sound with

a sensor to generate a corresponding sensor signal (Fig. 1; page 2, paragraph 0023);

generating data with the sensor signal in accordance with a maximum likelihood

estimator (Fig. 1; page 3, paragraph 0047; pages 3 and 4, paragraph 0051); and

filtering the data with an order-statistics filter to provide an estimate of reverberation

time (Fig. 1; page 3, paragraph 0047; page 4, paragraphs 0058-0062; page 5,

paragraph 0071; claim 1).

4.   Regarding Claim 2, Kantor discloses iteratively determining a decay time

parameter and a power parameter during execution of said generating (Fig. 1; page 3,

paragraph 0047 to page 4, paragraph 0062).

5.   Regarding Claim 3, Kantor discloses providing the reverberation time to one or more of a hearing assistance data processing routine, a voice recognition data processing routine, a hands-free telephony data processing routine, a teleconference data processing routine, and a sound level evaluation data processing routine (Fig. 1; page 2, paragraph 0024; page 5, paragraph 0071; claim 4).

6.   Regarding Claim 4, Kantor discloses said generating includes calculating a number of reverberation time parameter estimations with the maximum likelihood estimator, the estimations each being calculated as a function of a sequence of sound observations over a different time window (Fig. 3; page 3, paragraph 0049 to page 4, paragraph 0051).

7.   Regarding Claim 5, Kantor discloses a method, comprising: detecting sound with a sensor to generate a corresponding sound signal (Fig. 1; page 2, paragraph 0023); iteratively determining two or more values with a maximum likelihood function to evaluate one or more reverberation characteristics of an acoustic environment, one of the values corresponding to a time-constant parameter and another of the values corresponding to a diffusive power parameter (Fig. 1; page 3, paragraph 0047 to page 4, paragraph 0062); and providing an estimate corresponding to reverberation time of the acoustic environment (Fig. 1; page 3, paragraph 0047; page 4, paragraphs 0058-0062; page 5, paragraph 0071; claim 1).

8.   Regarding Claim 6, Kantor discloses said iteratively determining is performed for each of a number of different frequency ranges of the sound and includes calculating a reverberation time estimate for each of the different frequency ranges (Table 1).

9.   Claim 7 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

10.   Claim 8 is essentially similar to Claim 4 and is rejected for the reasons stated above apropos to Claim 4.

11.   Regarding Claim 9, Kantor discloses said providing includes filtering the reverberation time estimations with an order-statistics filter to select the estimate corresponding to reverberation of the acoustic environment (Fig. 1; page 3, paragraph 0047; page 4, paragraphs 0058-0062; page 5, paragraph 0071; claim 1).

12.   Claim 10 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

13.   Regarding Claim 11, Kantor discloses said selecting includes filtering the estimations (Fig. 1; page 3, paragraph 0047; page 4, paragraphs 0058-0062; page 5, paragraph 0071; claim 1).

14.   Regarding Claim 12, Kantor discloses said filtering is performed with an order-statistics filter (Fig. 1; page 3, paragraph 0047; page 4, paragraphs 0058-0062; page 5, paragraph 0071; claim 1).

15.   Claim 13 is essentially similar to Claim 2 and is rejected for the reasons stated above apropos to Claim 2.

16.   Claim 14 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

17.   Claim 15 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

18.   Claim 16 is essentially similar to Claim 8 and is rejected for the reasons stated above apropos to Claim 8.

19.   Claim 18 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10.

20.   All elements of Claim 19 are comprehended by Claim 18. Claim 19 is reasons for the reason stated above apropos to Claim 18.

21.   All elements of Claim 20 are comprehended by Claim 18. Claim 20 is reasons for the reason stated above apropos to Claim 18.

22.   Claim 21 is essentially similar to Claims 2 and 5 and is rejected for the reasons stated above apropos to Claims 2 and 5.

23.   Claim 22 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

24.   Claim 23 is essentially similar to Claim 11 and is rejected for the reasons stated above apropos to Claim 11.

25.   Claim 24 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

26.   Claim 26 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

27.   Claim 27 is essentially similar to Claim 20 and is rejected for the reasons stated above apropos to Claim 20.

28.   All elements of Claim 28 are comprehended by Claim 26. Claim 28 is rejected for the reasons stated above apropos to Claim 26.

29.   Claim 29 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

30.   Claim 30 is essentially similar to Claims 1 and 4 and is rejected for the reasons stated above apropos to Claims 1 and 4.

31.   Claim 32 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10 (page 2, paragraph 0024).

32.   Regarding Claim 33, Kantor discloses the logic includes a number of software instructions and the device includes a computer-readable memory storing the software instructions (page 2, paragraph 0024).

33.   Regarding Claim 34, Kantor discloses the device includes one or more parts of a computer network and the logic is encoded in one or more signals by the device (page 2, paragraph 0024).

34.   Claim 35 is essentially similar to Claim 12 and is rejected for the reasons stated above apropos to Claim 12.

35.   Claims 1-16, 18-24, and 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 20030099365 to Karjalainen et al. (hereafter as Karjalainen).

36.   Regarding Claim 1, Karjalainen discloses a method, comprising: detecting sound with a sensor to generate a corresponding sensor signal (Fig. 1); generating data with the sensor signal in accordance with a maximum likelihood estimator (Fig. 1; page 4,

paragraphs 0065-0066); and filtering the data with an order-statistics filter to provide an estimate of reverberation time (Fig. 1; page 4, paragraphs 0066-0069).

37.   Regarding Claim 2, Karjalainen discloses iteratively determining a decay time parameter and a power parameter during execution of said generating (Fig. 1; page 4, paragraphs 0066-0069).

38.   Regarding Claim 3, Karjalainen discloses providing the reverberation time to one or more of a hearing assistance data processing routine, a voice recognition data processing routine, a hands-free telephony data processing routine, a teleconference data processing routine, and a sound level evaluation data processing routine (Fig. 1; abstract).

39.   Regarding Claim 4, Karjalainen discloses said generating includes calculating a number of reverberation time parameter estimations with the maximum likelihood estimator, the estimations each being calculated as a function of a sequence of sound observations over a different time window (page 4, paragraphs 0066-0069).

40.   Regarding Claim 5, Karjalainen discloses a method, comprising: detecting sound with a sensor to generate a corresponding sound signal (Fig. 1); iteratively determining two or more values with a maximum likelihood function to evaluate one or more reverberation characteristics of an acoustic environment, one of the values corresponding to a time-constant parameter and another of the values corresponding to a diffusive power parameter (Fig. 1; page 4, paragraphs 0065-0066); and providing an estimate corresponding to reverberation time of the acoustic environment (Fig. 1; page 4, paragraphs 0066-0069).

41.   Regarding Claim 6, Karjalainen discloses said iteratively determining is

performed for each of a number of different frequency ranges of the sound and includes

calculating a reverberation time estimate for each of the different frequency ranges

(page 4, paragraph 0071).

42.   Claim 7 is essentially similar to Claim 3 and is rejected for the reasons stated

above apropos to Claim 3.

43.   Claim 8 is essentially similar to Claim 4 and is rejected for the reasons stated

above apropos to Claim 4.

44.   Regarding Claim 9, Karjalainen discloses said providing includes filtering the

reverberation time estimations with an order-statistics filter to select the estimate

corresponding to reverberation of the acoustic environment (Fig. 1; page 4, paragraphs

0066-0069).

45.   Claim 10 is essentially similar to Claims 1 and 5 and is rejected for the reasons

stated above apropos to Claims 1 and 5.

46.   Regarding Claim 11, Karjalainen discloses said selecting includes filtering the

estimations (Fig. 1; page 4, paragraphs 0066-0069).

47.   Regarding Claim 12, Karjalainen discloses said filtering is performed with an

order-statistics filter (Fig. 1; page 4, paragraphs 0066-0069).

48.   Claim 13 is essentially similar to Claim 2 and is rejected for the reasons stated

above apropos to Claim 2.

49.   Claim 14 is essentially similar to Claim 6 and is rejected for the reasons stated

above apropos to Claim 6.

50.   Claim 15 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

51.   Claim 16 is essentially similar to Claim 8 and is rejected for the reasons stated above apropos to Claim 8.

52.   Claim 18 is essentially similar to Claims 1, 5, and 10 and is rejected for the reasons stated above apropos to Claims 1, 5, and 10.

53.   All elements of Claim 19 are comprehended by Claim 18. Claim 19 is reasons for the reason stated above apropos to Claim 18.

54.   All elements of Claim 20 are comprehended by Claim 18. Claim 20 is reasons for the reason stated above apropos to Claim 18.

55.   Claim 21 is essentially similar to Claims 2 and 5 and is rejected for the reasons stated above apropos to Claims 2 and 5.

56.   Claim 22 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos to Claim 6.

57.   Claim 23 is essentially similar to Claim 11 and is rejected for the reasons stated above apropos to Claim 11.

58.   Claim 24 is essentially similar to Claim 3 and is rejected for the reasons stated above apropos to Claim 3.

59.   Claim 26 is essentially similar to Claims 1 and 5 and is rejected for the reasons stated above apropos to Claims 1 and 5.

60.   Claim 27 is essentially similar to Claim 20 and is rejected for the reasons stated above apropos to Claim 20.

61.   All elements of Claim 28 are comprehended by Claim 26. Claim 28 is rejected for

the reasons stated above apropos to Claim 26.

62.   Claim 29 is essentially similar to Claim 3 and is rejected for the reasons stated

above apropos to Claim 3.

63.   Claim 30 is essentially similar to Claims 1 and 4 and is rejected for the reasons

stated above apropos to Claims 1 and 4.

Claim Rejections - 35 USC § 103

64.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

65.   Claims 17, 25, and 31 are rejected under 35 U.S.C. 103(a) as being

unpatentable over by U.S. Patent Application Publication No. 20040091120 to Kantor.

Regarding Claim 17, Kantor does not expressly disclose adaptively changing the

duration of the different time windows. However, it is well known in the art to adaptively

changing the duration of the different time windows in order to provide flexibility to have

different time windows which provide the desired results. Therefore it would have been

obvious to one having ordinary skill in the art at the time of the invention to modify

Kantor to adaptively changing the duration of the different time windows in order to

provide flexibility to have different time windows which provide the desired results.

66.   Claim 25 is essentially similar to Claim 17 and is rejected for the reasons stated above apropos to Claim 17.

67.   Claim 31 is essentially similar to Claims 6 and 17 and is rejected for the reasons stated above apropos to Claims 6 and 17.

68.   Claims 17, 25, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 20030099365 to Karjalainen. Regarding Claim 17, Karjalainen does not expressly disclose adaptively changing the duration of the different time windows. However, it is well known in the art to adaptively changing the duration of the different time windows in order to provide flexibility to have different time windows which provide the desired results. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Karjalainen to adaptively changing the duration of the different time windows in order to provide flexibility to have different time windows which provide the desired results.

69.   Claim 25 is essentially similar to Claim 17 and is rejected for the reasons stated above apropos to Claim 17.

70.   Claim 31 is essentially similar to Claims 6 and 17 and is rejected for the reasons stated above apropos to Claims 6 and 17.

Conclusion

71.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 21, 2006
CPC

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